

WHAT IS CLAIMED IS:

1. A resin-encapsulated semiconductor device,  
comprising:

5 a die pad;

a semiconductor chip mounted on the die pad;

10 a first lead including a first bonding pad provided on an upper surface of the first lead and a first land provided on a lower surface of the first lead;

15 a second lead including a second bonding pad provided on an upper surface of the second lead and a second land provided on a lower surface of the second lead;

a third lead including a third bonding pad provided on an upper surface of the third lead and a third land provided on a lower surface of the third lead;

20 thin metal wires each connecting the bonding pad of each lead to a portion of the semiconductor chip; and

an encapsulation resin for encapsulating the semiconductor chip, the leads, the thin metal wires and the die pad,

wherein the first lead and the third lead are separated from each other, with one end of the first lead being exposed on a surface of the encapsulation resin and both ends of the third lead being in the encapsulation resin.

25 2. The resin-encapsulated semiconductor device of claim 1, wherein at least the second lead includes a neck portion having a smaller width than other portions as viewed

in a plan view.

3. The resin-encapsulated semiconductor device of  
claim 1, wherein each lead includes a region around the  
bonding pad thereof that has a smaller thickness than that of  
5 a portion of the lead corresponding to the bonding pad, with  
a stepped portion being provided between the bonding pad and  
the region around the bonding pad.

4. The resin-encapsulated semiconductor device of  
claim 1, wherein the first, second and third lands are  
exposed on a lower surface of the encapsulation resin while  
being arranged in three rows as viewed in a plan view.

5. The resin-encapsulated semiconductor device of  
claim 1, wherein the second lead and a lead structure  
including the first and third leads are arranged alternately  
15 along a periphery of an opening of a frame body.

6. A method for manufacturing a resin-encapsulated  
semiconductor device, comprising the steps of:

(a) preparing a lead frame, wherein the lead frame  
includes a frame body with a plurality of openings therein,  
20 and a die pad and a group of leads provided in each of the  
openings, the group of leads including: a first lead  
including a first bonding pad provided on an upper surface of  
the first lead and a first land provided on a lower surface  
of the first lead; a second lead including a second bonding  
25 pad provided on an upper surface of the second lead and a  
second land provided on a lower surface of the second lead;

and a third lead connected to the first lead and including a third bonding pad provided on an upper surface of the third lead and a third land provided on a lower surface of the third lead;

5 (b) attaching an encapsulation sheet on a lower surface of the lead frame;

10 (c) mounting a semiconductor chip on the die pad in each opening;

15 (d) electrically connecting each of a plurality of portions of each semiconductor chip to one of the first to third bonding pads via a thin metal wire;

20 (e) encapsulating the semiconductor chips, the leads, the thin metal wires and the die pads in the respective openings with an encapsulation resin, thereby producing an encapsulated structure;

(f) removing the encapsulation sheet;

(g) dividing the entire encapsulated structure obtained in the step (e) into individual resin-encapsulated semiconductor devices; and

25 (h) after the step (b) and before the step (e), cutting off a connecting portion between the first lead and the third lead, thereby electrically separating the first lead and the third lead from each other.

7. The method for manufacturing a resin-encapsulated  
25 semiconductor device of claim 6, wherein in the step (a), a  
neck portion is provided at least in the second lead in a

region between the second bonding pad and the frame body, the neck portion having a smaller width than other portions as viewed in a plan view.

8. The method for manufacturing a resin-encapsulated semiconductor device of claim 6, wherein in the step (a), a stepped portion is provided between a region of each lead around the bonding pad of the lead and a portion of the lead corresponding to the bonding pad.

9. The method for manufacturing a resin-encapsulated semiconductor device of claim 6, wherein in the step (a), the second lead and a lead structure including the first and third leads are arranged alternately along a periphery of each opening of the frame body.

10 15 10. The method for manufacturing a resin-encapsulated semiconductor device of claim 6, wherein in the step (g), the encapsulated structure is cut by a rotating blade.